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COUNTRY : USSR

SUBJECT : MILITARY NEWS: "The Laying of Mine Fields in Winter", by Lieutenant-Colonel G. Mishustin

The Laying of Mine Fields in Winter

by

Lieutenant-Colonel G. Mishustin

In the winter of 1959-1960, several experimental exercises were carried out with the engineer troops of our district to seek and develop the most effective methods of laying mine fields in deep snow and with the minimum expenditure of labor and time.

With the depth of loose snow up to 60 cm, the antitank mines TM-46 and TMDB were laid, not with supports as recommended in the manual, but directly onto the snow, which was not even packed snow. A tank prime mover was repeatedly driven over the mines laid in this manner, and every time a mine was run over, it exploded without fail. The use of this method makes it possible to save a great deal of time which previously was spent in the preparation, bringing up, and laying of the supports. Besides this, the method definitely obviates the need to use mine-laying trailers (pritsepnoy minnyy raskladchik).

Interesting data were obtained in the laying of antitank mines /in the tracks/ formed by tracked vehicles in snow with a depth of /figure missing/. It was established that tracked vehicles with a specific pressure /figures missing/ produce packing of the snow which is sufficient for /two words missing/. A check of the combat effectiveness of mines laid in these tracks made in the snow (a tank prime mover was also driven over these mines) has shown that all the mines explode reliably when driven over. The concealment layer of snow over the mine was not more that 30 to 40 cm.

When laying mines in the snow tracks formed by tracked vehicles, an opportunity is created to mechanize the work. The attempts, however, to use a mine-laying trailer towed by a tracked vehicle have not shown positive results because the width of track of the layers is considerably narrower than the track of the tracked vehicles. Therefore, for the laying of mines at the exercises, the artillery prime mover ATT with special chutes for lowering the mines was employed (Sketch 1). Into the body of the prime mover a PMR-3 container is installed, into the racks of which 300 TM-46 antitank mines were placed. With one such prime mover two rows of mines were laid with $4\frac{1}{2}$ to 5 m spacing between them.

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Each prime mover had a team of 5 men. Number 1 (the senior) watched the movement of the vehicle on a given course; numbers 2 and 3, standing on the sides of the vehicle, took the mines out of the container and passed them accordingly on to numbers 4 and 5, who, using as a gauge a length of wire (8 to 9 m) on each chute, lowered the mines onto the snow (Sketch 2).

The lowering of each successive mine was carried out when the end of the wire was level with the preceding mine laid.

A mine field of six rows with a density of 750 mines per kilometer and stretching up to 1.2 kilometers was laid by three such teams in 30 minutes. The work procedure of the teams is shown in Sketch 3. The team took 30 minutes to reload the container.

The laying of mine fields can similarly be carried out employing other tracked vehicles--the GTS medium prime mover, heavy prime mover, tanks and tank prime movers, the S-80 tractor and others. It is worth noting that 100 TM-46 mines can be carried in the body of the GTS. When employing tanks, tank prime movers, and tractors for laying mines, sledge-runner mounts will be required to transport the set of mines (Sketch 4).

For comparison, under the same conditions an engineer platoon on skis as a combat team laid by hand a mine field on supports, stretching 130 to 140 linear meters along the front. It turned out that by the mechanized method the work is done ten times more quickly.

It is well known that under winter conditions it is very difficult to solve the problem of camouflaging newly laid mines and mine fields.

To camouflage the mines when laid out, there was employed a special camouflage shield (shchitok) (Sketch 5) which is somewhat wider than the tracks. Being fixed to the chute by metal wires, the shield creates a camouflage layer of snow 10 to 15 cm thick over the mine. At the same time the track itself is partly covered with snow.

To camouflage the mine field, it is recommended that the terrain be churned up all around in advance by disturbing the top layers of the snow cover. For this purpose, in the sectors selected for mine fields and those adjacent to them, a number of track marks are made by the tracked vehicles, and then in some of the sectors the mine fields are laid.

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Under conditions of deep snow cover, the troops will be operating on vehicles with high clearance and on skis. Therefore, besides the antitank and antivehicle obstacles, it will be necessary to lay antipersonnel mines which would detonate when a soldier on skis passed over them.

An experimental check showed that pressure antipersonnel mines or trip-wire fragmentation mines, when covered by more than 5 cm of snow, failed to explode when passed over by a soldier on skis.

Hence, it is inadvisable to lay PDM-6, PMN, POMZ-2M and OZM-4 antipersonnel mines in areas with intense snowfall.

To ensure the combat effectiveness of the antipersonnel mine fields in winter it is most advisable to use fragmentation mines with a directional action MON-100 and MON-200 because they possess a large area of destruction and retain their combat characteristics even under a considerable blanket of snow. At the same time they are simple to maintain and camouflage.

In a terrain covered by forest and shrub, all types of trip-wire antipersonnel mines can be utilized in the winter, but when laying them the thickness of the expected snow cover must be considered. In all cases the trip wire to the mine must be above the surface of the snow.

Engineer obstacles and particularly those of the explosive type can play a very important role under modern combat conditions if skilfully used. However, not all existing types of mines and methods of laying them are sufficiently developed. In our opinion, the creative ideas of officers of the engineer troops and particularly of our scientific research establishments must be directed at the present time to the development of mines which could be laid easily from helicopters brought into combat use at any time, and which could destroy themselves after a specific previously determined time or when no longer required.

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Fig. 1

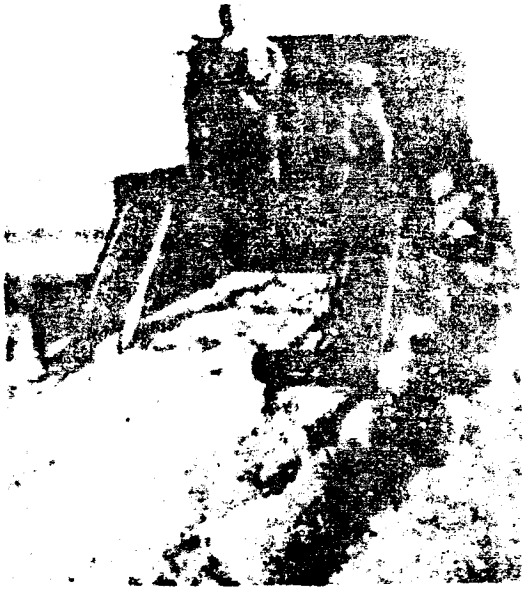

Fig. 2

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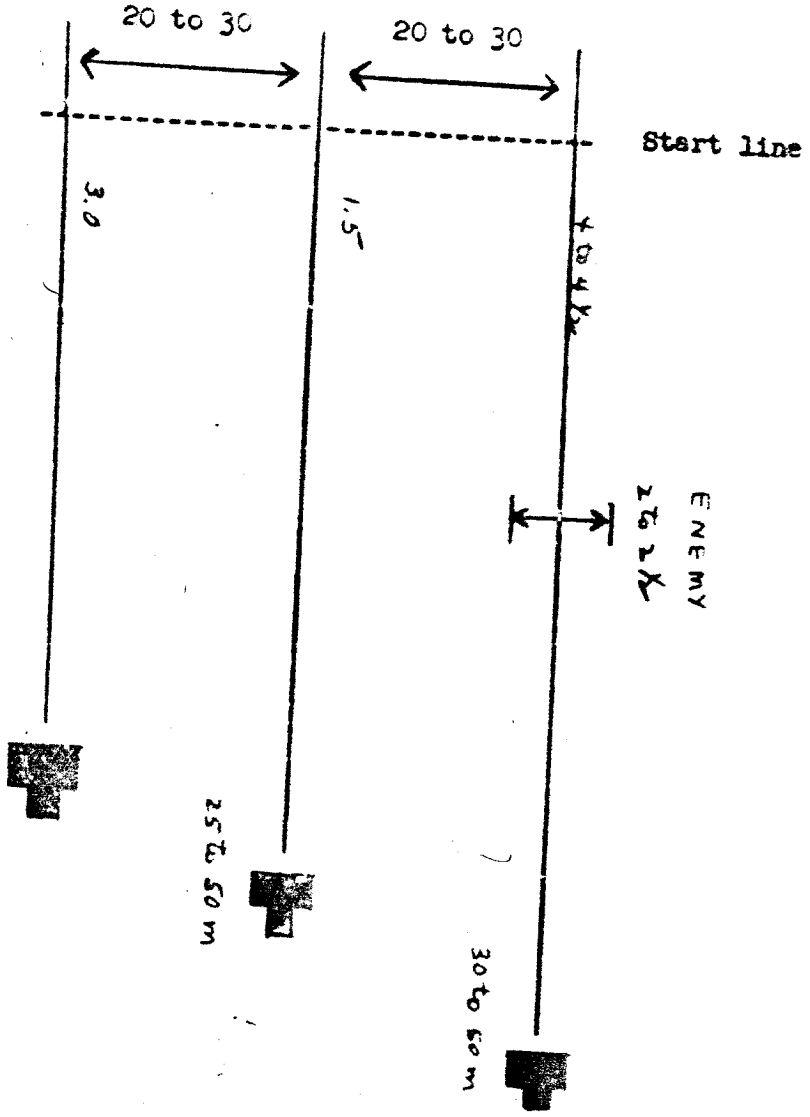

SKETCH 3

The Organization of Work of an Engineer Platoon for Laying a Three Row Antitank Mine-field from Vehicles

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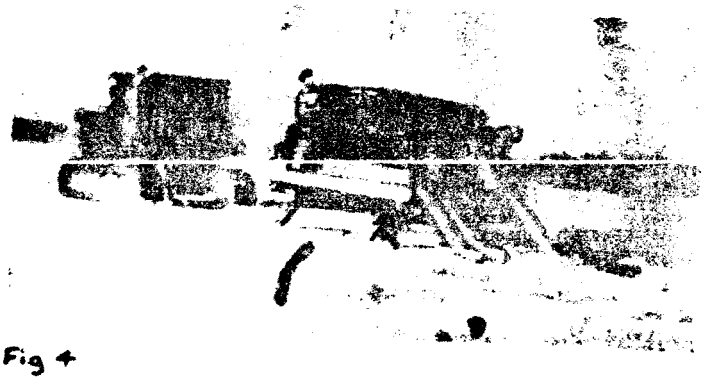

Fig 4

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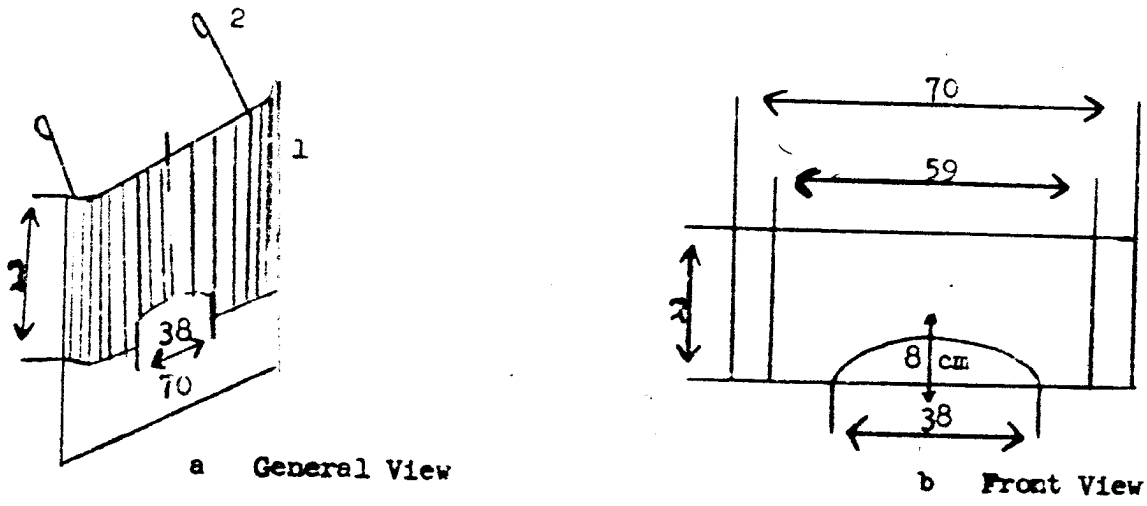
Shield for camouflage
of mines



a General View

b Front View

SKETCH 5

Diagram of Shield for Camouflage of Mines

1. Camouflage shield made of plate steel, 1 to 2 mm in thickness.
2. Metal wires to attach it to the chute.

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